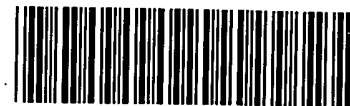


#7/8

05.28.02



1652

ENTERED

1600

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/995,587A

DATE: 03/07/2002 8.6

TIME: 15:12:25

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Output Set: N:\CRF3\03072002\I995587A.raw

C--> 3 <110> APPLICANT: VAN HIJUM, SACHA ADRIANUS FOKKE TACO  
 4 VAN GEEL-SCHUTTEN, GERRITDINA HENDRIKA  
 5 DIJKHUIZEN, LUBBERT  
 6 RAHAOUI, HAKIM  
 8 <120> TITLE OF INVENTION: NOVEL FRUCTOSYLTRANSFERASES  
 10 <130> FILE REFERENCE: BO43667-CIP  
 12 <140> CURRENT APPLICATION NUMBER: 09/995,587A  
 13 <141> CURRENT FILING DATE: 2002-02-28  
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 16 <151> PRIOR FILING DATE: 2000-06-28  
 18 <150> PRIOR APPLICATION NUMBER: EPO 00201872.9  
 19 <151> PRIOR FILING DATE: 2000-05-25  
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 23 <170> SOFTWARE: PatentIn Ver. 2.1  
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 28 <213> ORGANISM: Lactobacillus reuteri  
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 35 20 25 30  
 37 Ile Glu Asn Asn Asp Ser Ser Thr Val Gln Val Thr Thr Gly Asp Asn  
 38 35 40 45  
 40 Asp Ile Ala Val Lys Ser Val Thr Leu Gly Ser Gly Gln Val Ser Ala  
 41 50 55 60  
 43 Ala Ser Asp Thr Thr Ile Arg Thr Ser Ala Asn Ala Asn Ser Ala Ser  
 44 65 70 75 80  
 46 Ser Ala Ala Asn Thr Gln Asn Ser Asn Ser Gln Val Ala Ser Ser Ala  
 47 85 90 95  
 49 Ala Ile Thr Ser Ser Thr Ser Ser Ala Ala Ser Leu Asn Asn Thr Asp  
 50 100 105 110  
 52 Ser Lys Ala Ala Gln Glu Asn Thr Asn Thr Ala Lys Asn Asp Asp Thr  
 53 115 120 125  
 55 Gln Lys Ala Ala Pro Ala Asn Glu Ser Ser Glu Ala Lys Asn Glu Pro  
 56 130 135 140  
 58 Ala Val Asn Val Asn Asp Ser Ser Ala Ala Lys Asn Asp Asp Gln Gln  
 59 145 150 155 160  
 61 Ser Ser Lys Lys Asn Thr Thr Ala Lys Leu Asn Lys Asp Ala Glu Asn  
 62 165 170 175  
 64 Val Val Lys Lys Ala Gly Ile Asp Pro Asn Ser Leu Thr Asp Asp Gln  
 65 180 185 190

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MAR 21 2002

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## RAW SEQUENCE LISTING

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DATE: 03/07/2002

TIME: 15:12:25

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Output Set: N:\CRF3\03072002\I995587A.raw

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70 Thr Gln Met Thr Tyr Asn Asp Phe Gln Lys Ile Ala Asp Thr Leu Ile
71      210      215      220
73 Lys Gln Asp Gly Arg Tyr Thr Val Pro Phe Phe Lys Ala Ser Glu Ile
74 225      230      235      240
76 Lys Asn Met Pro Ala Ala Thr Thr Lys Asp Ala Gln Thr Asn Thr Ile
77      245      250      255
79 Glu Pro Leu Asp Val Trp Asp Ser Trp Pro Val Gln Asp Val Arg Thr
80      260      265      270
82 Gly Gln Val Ala Asn Trp Asn Gly Tyr Gln Leu Val Ile Ala Met Met
83      275      280      285
85 Gly Ile Pro Asn Gln Asn Asp Asn His Ile Tyr Leu Leu Tyr Asn Lys
86      290      295      300
88 Tyr Gly Asp Asn Glu Leu Ser His Trp Lys Asn Val Gly Pro Ile Phe
89 305      310      315      320
91 Gly Tyr Asn Ser Thr Ala Val Ser Gln Glu Trp Ser Gly Ser Ala Val
92      325      330      335
94 Leu Asn Ser Asp Asn Ser Ile Gln Leu Phe Tyr Thr Arg Val Asp Thr
95      340      345      350
97 Ser Asp Asn Asn Thr Asn His Gln Lys Ile Ala Ser Ala Thr Leu Tyr
98      355      360      365
100 Leu Thr Asp Asn Asn Gly Asn Val Ser Leu Ala Gln Val Arg Asn Asp
101      370      375      380
103 Tyr Ile Val Phe Glu Gly Asp Gly Tyr Tyr Tyr Gln Thr Tyr Asp Gln
104 385      390      395      400
106 Trp Lys Ala Thr Asn Lys Gly Ala Asp Asn Ile Ala Met Arg Asp Ala
107      405      410      415
109 His Val Ile Glu Asp Gly Asn Gly Asp Arg Tyr Leu Val Phe Glu Ala
110      420      425      430
112 Ser Thr Gly Leu Glu Asn Tyr Gln Gly Glu Asp Gln Ile Tyr Asn Trp
113      435      440      445
115 Leu Asn Tyr Gly Gly Asp Asp Ala Phe Asn Ile Lys Ser Leu Phe Arg
116      450      455      460
118 Ile Leu Ser Asn Asp Asp Ile Lys Ser Arg Ala Thr Trp Ala Asn Ala
119 465      470      475      480
121 Ala Ile Gly Ile Leu Lys Leu Asn Lys Asp Glu Lys Asn Pro Lys Val
122      485      490      495
124 Ala Glu Leu Tyr Ser Pro Leu Ile Ser Ala Pro Met Val Ser Asp Glu
125      500      505      510
127 Ile Glu Arg Pro Asn Val Val Lys Leu Gly Asn Lys Tyr Tyr Leu Phe
128      515      520      525
130 Ala Ala Thr Arg Leu Asn Arg Gly Ser Asn Asp Asp Ala Trp Met Asn
131      530      535      540
133 Ala Asn Tyr Ala Val Gly Asp Asn Val Ala Met Val Gly Tyr Val Ala
134 545      550      555      560
136 Asp Ser Leu Thr Gly Ser Tyr Lys Pro Leu Asn Asp Ser Gly Val Val
137      565      570      575
139 Leu Thr Ala Ser Val Pro Ala Asn Trp Arg Thr Ala Thr Tyr Ser Tyr

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## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/995,587A

DATE: 03/07/2002

TIME: 15:12:25

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Output Set: N:\CRF3\03072002\I995587A.raw

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148 Trp Ala Pro Ser Phe Leu Leu Gln Ile Asn Pro Asp Asn Thr Thr Thr
149 625          630          635          640
151 Val Leu Ala Lys Met Thr Asn Gln Gly Asp Trp Ile Trp Asp Asp Ser
152          645          650          655
154 Ser Glu Asn Leu Asp Met Ile Gly Asp Leu Asp Ser Ala Ala Leu Pro
155          660          665          670
157 Gly Glu Arg Asp Lys Pro Val Asp Trp Asp Leu Ile Gly Tyr Gly Leu
158          675          680          685
160 Lys Pro His Asp Pro Ala Thr Pro Asn Asp Pro Glu Thr Pro Thr Thr
161          690          695          700
163 Pro Glu Thr Pro Glu Thr Pro Asn Thr Pro Lys Thr Pro Lys Thr Pro
164 705          710          715          720
166 Glu Asn Pro Gly Thr Pro Gln Thr Pro Asn Thr Pro Asn Thr Pro Glu
167          725          730          735
169 Ile Pro Leu Thr Pro Glu Thr Pro Lys Gln Pro Glu Thr Gln Thr Asn
170          740          745          750
172 Asn Arg Leu Pro Gln Thr Gly Asn Asn Ala Asn Lys Ala Met Ile Gly
173          755          760          765
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179 785
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193 tctacaagtt ccgcagcttc attaaataac acagatagta aagcggctca agaaaatact 360
194 aatacagcca aaaatgatga cagcgaacaaa gctgcaccag ctaacgaatc ttctgaagct 420
195 aaaaatgaac cagctgtaaa cgttaatgat tcttcagctg caaaaaatga tgatcaacaa 480
196 tccagtaaaa agaatactac cgctaagtta aacaaggatg ctgaaaacgt tgtaaaaaag 540
197 gcgggaattg atcctaacag tttaactgat gaccagatta aagcattaaa taagatgaac 600
198 ttctcgaaaag ctgcaaagtc tggtagacaa atgacttata atgatttcca aaagattgct 660
199 gatacgttaa tcaaacaaga tggtcggtac acagttccat tctttaaagc aagtgaatc 720
200 aaaaatatgc ctgcgcgtac aactaaagat gcacaaacta atactattga acctttagat 780
201 gtatgggatt catggccagt tcaagatgtt cggacaggac aagttgctaa ttggaatggc 840
202 tatcaacttg tcatcgcaat gatgggaatt ccaaaccaaa atgataatca tatctatctc 900
203 ttatataata agtatggtga taatgaatta agtcattgga agaattgagg tccaattttt 960
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206 aaaattgcta gcgctactct ttatttaact gataataatg gaaatgtatc actcgctcag 1140
207 gtacgaaatg actatattgt atttgaagggt gatggctatt actaccaaac ttatgatcaa 1200
208 tggaaagcta ctaacaaagg tgccgataat attgcaatgc gtgatgctca tgtaattgaa 1260
209 gatggtaatg gtgatcggtg ccttggtttt gaagcaagta ctggtttggg aaattatcaa 1320
210 ggcgaggacc aaattttataa ctggttaaat tatggcggag atgacgcatt taatatcaag 1380
211 agcttattta gaattctttc caatgatgat attaagagtc gggcaacttg ggctaattgca 1440
212 gctatcggtg tccctcaact aaataaggac gaaaagaatc ctaagggtggc agagttatac 1500
213 tcaccattaa tttctgcacc aatggtaagc gatgaaattg agcgaccaa tgtagttaaa 1560
214 ttaggtaata aatattactt atttgcgct acccgtttaa atcgaggaag taatgatgat 1620
215 gcttggatga atgctaatta tgccgttggg gataatgttg caatggctcg atatgttgct 1680
216 gatagtctaa ctggatctta taagccaata aatgattctg gagtagtctt gactgcttct 1740
217 gttcctgcaa actggcggac agcaacttat tcatattatg ctgtccccgt tgccggaaaa 1800
218 gatgaccaag tattagttac ttcatatatg actaatagaa atggagtagc gggtaaagga 1860
219 atggattcaa cttgggcacc gagtttctta ctacaaatta acccgataa cacaactact 1920
220 gtttttagcta aaatgactaa tcaaggggat tggatttggg atgattcaag cgaaaatctt 1980
221 gatatgattg gtgatttaga ctccgctgct ttacctggcg aacgtgataa acctgttgat 2040
222 tgggacttaa ttggttatgg attaaaaccg catgatcctg ctacaccaa tgatcctgaa 2100
223 acgccaacta caccagaaac ccctgagaca cctaatactc ccaaaacacc aaagactcct 2160
224 gaaaatcctg ggacacctca aactcctaata acacctaata ctccggaaat tcccttaact 2220
225 ccagaaacgc ctaagcaacc tgaaacccaa actaataatc gtttgccaca aactggaaat 2280
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238 aatattgaaa acaatgattc ttctactgta caagttacaa caggtgataa tgatattgct 180
239 gttaaaagtg tgacacttgg tagtggtoaa gttagtgcag ctagtgatac gactattaga 240
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241 gtagcaagtt ctgctgcaat aacatcatct acaagttccg cagcttcatt aaataacaca 360
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243 gcaccagcta acgaatcttc tgaagctaaa aatgaaccag ctgtaaacgt taatgattct 480
244 tcagctgcaa aaaatgatga tcaacaatcc agtaaaaaga atactaccgc taagttaaac 540
245 aaggatgctg aaaacggttg aaaaaaggcg ggaattgatc ctaacagttt aactgatgac 600
246 cagattaaag cattaaataa gatgaacttc tcgaaagctg caaagtctgg tacacaaatg 660
247 acttataatg atttccaaaa gattgctgat acgttaatca aacaagatgg tcggtacaca 720
248 gttccattct ttaaagcaag tgaaatcaaa aatatgcctg ccgctacaac taaagatgca 780
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251 aaccaaaatg ataatcatat ctatctctta tataataagt atgggtgataa tgaattaagt 960
252 cattggaaga atgtaggtcc aatttttggc tataattcta ccgcggtttc acaagaattg 1020
253 tcaggatcag ctgttttgaa cagtgataac tctatccaat tttttatac aagggtagac 1080
254 acgtctgata acaataccaa tcatcaaaaa attgctagcg ctactcttta tttaactgat 1140
255 aataatggaa atgtatcact cgctcaggta cgaaatgact atattgtatt tgaaggatg 1200
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259 ggcgagatg acgcatttaa tatcaagagc ttatttagaa ttctttccaa tgatgatatt 1440
260 aagagtcggg caacttgggc taatgcagct atcggtatcc tcaaactaaa taaggacgaa 1500
261 aagaatccta aggtggcaga gttatactca ccattaattt ctgcaccaat ggtaagcgat 1560
262 gaaattgagc gaccaaagt agttaaatga ggtaataaat attacttatt tgccgctacc 1620
263 cgttttaaatc gaggaagtaa tgatgatgct tggatgaatg ctaattatgc cgttggtgat 1680
264 aatggtgcaa tggtcggata tgttctgat agtctaactg gatcttataa gccattaaat 1740
265 gattctggag tagtcttgac tgcttctgtt cctgcaaact ggcgacagc aacttattca 1800
266 tattatgctg tccccgttg cggaaaagat gaccaagtat tagttacttc atatatgact 1860
267 aatagaaatg gagtagcgg taaaggaatg gattcaactt gggcaccgag tttcttacta 1920
268 caaattaacc cggataaac aactactgtt ttagctaaaa tgactaatca aggggattgg 1980
269 atttgggatg attcaagcga aaatcttgat atgattgggtg atttagactc cgctgcttta 2040
270 cctggcgaaac gtgataaacc tgttgattgg gacttaattg gttatggatt aaaaccgcat 2100
271 gatcctgcta caccaaata tcttgaaacg ccaactacac cagaaaaccc tgagacacct 2160
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273 cctaatactc cggaaattcc tttaactcca gaaacgccta agcaacctga aacccaaact 2280
274 aataatcggt tgccacaaac tggaaataat gccataaag ccattgattg cctaggatg 2340
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294 1 5 10 15
296 acg caaggaacat aaaaaa atg tat aaa agc ggt aaa aat tgg gca gtc gtt 100
297 Thr Met Tyr Lys Ser Gly Lys Asn Trp Ala Val Val
298 20 25
300 aca ctc tcg act gct gcg ctg gta ttt ggt gca aca act gta aat gca 148
301 Thr Leu Ser Thr Ala Ala Leu Val Phe Gly Ala Thr Thr Val Asn Ala
302 30 35 40
304 tcc gcg gac aca aat att gaa aac aat gat tct tct act gta caa gtt 196
305 Ser Ala Asp Thr Asn Ile Glu Asn Asn Asp Ser Ser Thr Val Gln Val
306 45 50 55 60
308 aca aca ggt gat aat gat att gct gtt aaa agt gtg aca ctt ggt agt 244
309 Thr Thr Gly Asp Asn Asp Ile Ala Val Lys Ser Val Thr Leu Gly Ser
310 65 70 75
312 ggt caa gtt agt gca gct agt gat acg act att aga act tct gct aat 292
313 Gly Gln Val Ser Ala Ala Ser Asp Thr Thr Ile Arg Thr Ser Ala Asn
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RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/09/995,587A

DATE: 03/07/2002  
TIME: 15:12:26

Input Set : A:\Bo43667.app  
Output Set: N:\CRF3\03072002\I995587A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; Xaa Pos. 3  
Seq#:10; N Pos. 2702,2703,2704,2705,2706,2707,3686,3687,3688,3689,3690,3691  
Seq#:10; N Pos. 3692,3693,3694,3695,3696,3697,3698  
Seq#:10; Xaa Pos. 495,496,737  
Seq#:11; Xaa Pos. 495,496,737  
Seq#:18; N Pos. 6,15  
Seq#:19; N Pos. 3,6,9,12  
Seq#:22; N Pos. 6,9,12,18,21  
Seq#:23; N Pos. 9,12,15,21  
Seq#:26; N Pos. 6,9

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/995,587A

DATE: 03/07/2002

TIME: 15:12:26

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Output Set: N:\CRF3\03072002\I995587A.raw

L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0  
L:751 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:2692  
L:752 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:2740  
L:812 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:3460  
L:829 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:3658  
L:970 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:480  
L:1018 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:736  
L:1122 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:0  
L:1154 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0  
L:1215 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22 after pos.:0  
L:1247 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0  
L:1288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:0